



OPERATING ISOLATED ICT POWER SUPPLIES IN PARALLEL

ICT products are designed to provide continuous trouble free power for a wide variety of applications. This note describes how to connect isolated ICT products in parallel.

This application note covers all isolated power supply products. All of our products powered by AC are isolated, as well as the ICT Isolated Series DC to DC power converters.

Isolated power supplies can be connected in parallel and series for two reasons. One, the outputs are floating, which means that the positive terminal is only referenced to the negative terminal, not to ground or any other point. Two, all of ICT's products are based on switchmode power conversion technology, which has an inherent shottky diode on the output of the product. This prevents feedback into the power supply from external sources.

When connecting two or more supplies together, it is important to make sure that the units share the load as evenly as possible. This prevents one unit from providing an unevenly large share of the load, overstressing the unit while the other unit provides very little power. To make sure the power supplies share properly, ICT recommends that the units output voltage be adjusted to match each other at the maximum load expected. All of our products are set to approximately the same output voltage at half of maximum load, but it is important for the installer to verify proper sharing. The output voltage is easily adjusted using the internal potentiometer.

This method of current sharing is sometimes called the droop method, because if one supply is providing more current, the output voltage should decrease slightly so that the other power supply starts to provide more current. This is a result of the products being designed to slightly decrease in output voltage as the load increases. The units should share the load evenly within 10% if adjusted properly.

When connecting two or more units in series, the current drawn is equal between the units. However, an external diode across each output (anode to negative, cathode to positive) as well as a fuse is recommended. If two units are connected in series and the load is shorted, the units are essentially connect to each other with reverse polarity, which would result in damage to the units. The external diode rating should match the maximum current provided by the system.

If you have any questions, please contact our engineering department for assistance.

IMPORTANT

Always unplug the power supply before removing the cover. Dangerous internal voltages may be present for several minutes after the power supply has been turned off due to stored energy in capacitors. Servicing should only be done by a qualified technician.

